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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/598,842

09/13/2006

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Q96962

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23373 7590 11/02/2011  
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EXAMINER

KRYLOVA, IRINA

ART UNIT

PAPER NUMBER

1764

NOTIFICATION DATE

DELIVERY MODE

11/02/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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***Attachment to Advisory Action***

1. Applicant's amendment filed on October 24, 2011 has been fully considered.

However, the amendment is not entered given it raises new issues which would require further consideration and/or search.

2. With respect to new issues, instant claim 1 has been amended to include the limitations of the weight average molecular weight of the copolymer (B) being of more than 50,000 but no more than 200,000; the copolymer (C) comprising 23.5-60% mass of an aromatic vinyl compound and having a vinyl bond in diene portion of 18-80 mass%. These limitations were not previously presented and therefore, would require further consideration and/or search.

3. Regarding Applicant's arguments with respect to rejections of Claims 1-5, 7-12, 15-16 under 35 U.S.C. 103(a) as being unpatentable over **Yokoyama et al** (US 5,959,039) and claims 1-5, 7-16 under 35 U.S.C. 103(a) as being unpatentable over **Yokoyama et al** (US 5,959,039) in view of **Sasaka et al** (US 6,376,593), it is noted that amendment is not entered, thus rendering Applicant's arguments moot.

4. Regarding the rejections of claims 1-5, 7-11, 13-16 under 35 U.S.C. 103(a) as being unpatentable over **Kawauzra et al** (US 5,679,744) and claims 1-5, 7-16 under 35 U.S.C. 103(a) as being unpatentable over **Kawauzra et al** (US 5,679,744) in view of **Yokoyama et al** (US 5,959,039), Applicant argues that **Kawauzra et al** fails to disclose

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a rubber composition comprising both the copolymer (B) having a weight average molecular weight of more than 50,000 but not more than 200,000 and the copolymer (C) having a weight average molecular weight of not less than 300,000, also referring to a Rule 132 Declaration by Mr. Suzuli filed on May 5, 2011 wherein Example 3 of Declaration, in which the copolymer (B) having Mw of more than 50,000 but no more than 200,000 (in particular 80,000) and the copolymer (C) having Mw of not less than 300,000 (in particular 450,000), exhibits a fracture strength of 126. In contrast, the rubber composition comprising copolymer (C) having Mw of less than 300,000 (comparative example D of Declaration), exhibits fracture strength of 97, thus showing unexpected superiority of Example 3 of Declaration.

5. Examiner disagrees.

1) As stated above, the amendment is not entered.

**2) Kawauzra et al** discloses a rubber composition comprising (col. 3, lines 6-50):

A) 100 pbw of combination of:

- 1) 30-70%wt (col. 3, lines 40-45) of a natural rubber;
- 2) 70-30%wt of a styrene-butadiene rubber (SBR) having styrene content of not more than 50%wt and vinyl content satisfying the relationship of  $V_n < 2St + 30$  (col. 4, lines 55-62); and

B) 2-20 pbw of styrene-butadiene block copolymer having styrene content of not more than 50%wt (col. 4, lines 62-67) and block a) having vinyl bond content of 5-30%wt and

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block b) having vinyl bond content of 73-80% (col. 5, lines 60-67; col. 6, lines 1-5) and the molecular weight of 50,000-800,000 (col. 6, lines 49-54).

**Kawauzra et al** further teaches that SBR may be any SBR used as a rubber component for various rubber applications (col. 11, lines 58-65) and shows specific examples of SBR having a weight average molecular weight of 867,000; styrene content of 47%wt and vinyl content of 75%mol (Table V-1) or weight average molecular weight of 320,000; styrene content 41%wt and vinyl content of 37%mol (Table V-2). Thus, it appears that SBR component A-2 above corresponds to high molecular weight component C) as claimed in the instant invention. The block copolymer component B) of **Kawauzra et al** shown above having the molecular weight of 50,000 to 800,000 appears to correspond to low molecular weight component B) having molecular weight of 50,000 to 300,000 as claimed in the instant invention.

Referring to the Declaration under 37 CFR 1.132, it is noted further noted that criticality of combination of the copolymer (B) having a weight average molecular weight of more than 50,000 but no more than 300,000 and the copolymer (C) having a weight average molecular weight of not less than 300,000 for improving, even specifically, fracture strength, appears to be not clear. Thus, comparative example 1, having no copolymer (B) at all, shows approximately the same fracture strength as that of comparative example B having copolymer (B) with Mw of 25,000 (TB 100 and 102). Since instant claim 1 recites the use copolymer (B) having Mw of more than 50,000 (i.e. for example 50,001), it appears to be not clear if the value of Fracture strength of a composition

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comprising a copolymer (B) having Mw of 50,001 comprises unexpectedly superiority with respect to Fracture strength as well.

Furthermore, comparing Comparative examples A, C and D, it appears that the values for Fracture strength of compositions comprising copolymer (C) having Mw of 250,000 and copolymers (B) with, respectively, Mw's of 25,000; 80,000 and 120,000, are very close (TB 93, 96 and 97). Since Mw of copolymer (C) claimed in the instant invention, is not less than 300,000, i.e. for example 300,001, which value is closer to Mw 250,000 of comparative examples A, C and D of the Declaration than to Mw of 450,000 Examples 3 and 4 of the Declaration, therefore, it is not clear if the values of Mw of copolymer (B) will influence the values of Fracture strength of the compositions comprising copolymer (C) having Mw of 300,000.

6. Regarding the rejection of claims 1-5, 7-16 under 35 U.S.C. 103(a) as being unpatentable over **Masaki et al** (WO 2004/011545) and claims 1, 3-5, 7-16 under 35 U.S.C. 103(a) as being unpatentable over **Masaki et al** (WO 2004/011545) in view of **Yokoyama et al** (US 5,959,039), Applicant argues that it would not have been obvious to a one of ordinary skill in the art to modify the composition of **Masaki et al** such that tackiness is decreased and storage modulus and loss factor are improved.

7. Examiner disagrees.

As previously stated, isoprene is 2-methyl-1,3-butadiene, therefore, it appears to be a butadiene derivative, i.e. broadly appears to be a butadiene. Since isoprene is a

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butadiene derivative, therefore, it would have been obvious to a skilled artisan to use a non-substituted butadiene as well since it would have been obvious to substitute one equivalent for another. Case law holds that the selection of a known material based on its suitability for its intended use supports prima facie obviousness. *Sinclair & Carroll Co vs. Interchemical Corp.*, 325 US 327, 65 USPQ 297 (1045). Case law holds that the mere substitution of an equivalent (something equal in value or meaning, as taught by analogous prior art) is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable. See *In re Ruff* 118 USPQ 343 (CCPA 1958). Since instant claim 1 does not specify any properties of the composition and both instant specification and the Declaration recite the object of the invention as being the improvement in Storage modulus and loss factor, rather than improvement in tackiness (see [0004] of instant specification), therefore, based on the teachings of **Masaki et al**, it would have been obvious to a one of ordinary skill in the art to substitute the isoprene for butadiene in the copolymer (B) of **Masaki et al** and thus to arrive at the present invention. Furthermore, neither instant specification, nor Declaration showed any criticality of using butadiene versus isoprene as diene in copolymer (B) for improving the Storage modulus and Loss factor of the composition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IRINA KRYLOVA whose telephone number is (571)270-7349. The examiner can normally be reached on Monday-Friday 8:00am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasudevan Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Examiner, Art Unit 1764

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